DEVELOPING CATARACT DISEASE DETECTION USING MACHINE LEARNING ALGORITHM

UNDERGRADUATE THESIS

Submitted as one of the requirements to obtain Sarjana Komputer

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INFORMATICS STUDY PROGRAM

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MAY, 2023

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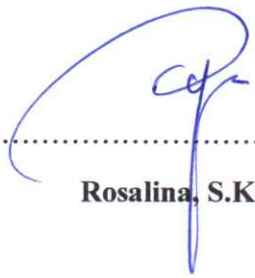

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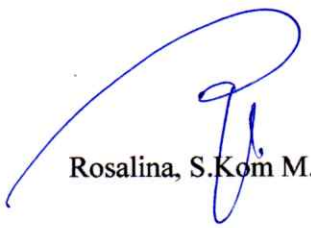

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ABSTRACT

The human eye is one of the most essential human organs, but it is also vulnerable to diseases. After years of medical technology enhancement, we can detect and cure most of eye diseases today. But despite this, the current medical technology still has weaknesses, such as disease detection time. Some eye diseases can be fatal if it's not treated as soon as possible, one of the examples is cataract disease. There are still many cases of blindness caused by cataract disease, and this is mostly due to late treatment.

In this thesis, the author researches a method that can produce an assisting tool that can help detect cataract disease for hospitals. The author uses a deep learning technique called Convolutional Neural Network (CNN), it is suitable for image recognition and processing tasks. The idea for this research is to create a machine learning model that have an ability to detect cataract disease based on image patterns. The image that is going to be used as an input is an image of the eye's fundus.

From the research conducted by the author, the machine learning model is also able to detect other diseases that can be identified from the human eye such as, myopia, diabetes, hypertension, glaucoma, and age-related muscular problem. After the model is implemented into a web application system, it shows that it is capable to detect diseases in seconds with a high accuracy evaluation.

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